

## **Top ten ways to save money in a caravan park.**

**The following information is a collection of the Project Officers notes which will help provide additional information to the fact sheets which highlight the potential savings achievable by implementing resource efficient practices in your park.**

**The “Top ten” list has been developed to identify the simplest and most cost effective options, many of which have no or minimal costs. The list is in random order.**

### **Top ten ways to save money in a caravan park.**

1. Implement a recycling system
2. Install water saving devices into showers and taps thereby reducing water use/ energy costs and water disposal fees as well as maintenance
3. Reduce the temperature of storage hot water systems and monitor temperature of instantaneous hot water units
4. Replace lighting with energy efficient equivalent
5. Insulate hot water pipes
6. Reduce flush volume or replace toilets with water efficient models
7. Shop around – bills/ collective purchase
8. Purchase energy efficient equipment
9. Replace storage hot water systems
10. Turn off hot water to washing machines.

### **Cost savings**

One of the first areas where operators can save money is with their service providers with waste management, gas, phone, internet and electricity. Caravan parks have to operate in a competitive business environment as such should seek out the best rates with their service suppliers. When was the last time you reviewed your current service providers? It is worth comparing your current charges with other operators on an annual basis.

Vic Parks offer a group purchase rate for services though they are not always the most competitive rates and you may be able to negotiate a better rate on an individual basis. You should consider working with other local operators and negotiate a group purchase rate.

### **Cost Savings – Showers**

**The easiest and most substantial saving can be achieved through your showers!**

The average amount of water used per minute was measured at 18 litres per minute. By installing a flow controlling device or an efficient shower head which reduces the flow rate to 9 litres per minute, the annual water usage in showers would be reduced by 50%.

In addition to the cost savings achievable through reduced water use, additional savings can be achieved through the reduction in the amount of water needing to be

disposed of. Whether your park is on town sewerage or has its own waste water treatment system there will be a cost associated to managing your waste water.

There is much discussion on the use of water efficient shower heads as showers are often used as a measure or attributed to the visitor experience or the quality of their stay.

Visitors may have a negative perception if they see water efficient shower heads. So to overcome this issue, flow restrictors can be installed into the current shower head (for a couple of dollars as apposed to the cost of a new shower head).

### **Assumptions**

- The average amount of visitor nights for caravan parks in Victoria is in-excess of 13,000. (Tourism Victoria and Vic Parks) *You can substitute you actual visitor nights in the examples below to calculate your potential savings.*
- Each Visitor has 1 shower per day.
- The average amount of water used in a shower at caravan/tourist parks participating in the project is 18 litres per minute (flow rate). *You can measure the flow rate using a bucket and watch. Test the hot and cold taps separately by holding the bucket under the shower for 15 seconds. Measure the amount of water and multiply it by 4 to determine the flow rate in litres per minute.*
- The average time a person spends in the shower is 8 minutes (Melbourne Water)
- The water used is comprised of 50% hot water and 50% cold water.

Using the above information it is possible to determine an approximate use of water (for showering) in a caravan park with average visitation levels.

### **To determine the amount of water used for each shower the following formula is applied.**

Flow rate (18 Litres per minute) x Average length of shower (8 minutes – *though people on holidays and children are likely to shower for longer periods*) = 144 litres of water per shower.

To determine the amount of water used for showering in a total year (or any given period) multiply the amount of water used in a single shower (144 litres) by the visitor nights.

$13,000 \times 144 = 1,872,000$  litres of water per year (936,000 litres of cold water and 936,000 litres of hot water)

### **Cost saving example - showers**

To save water and energy a restrictor or water saving shower head can be used. If 9 litre per minute restrictors were installed this would reduce the total annual water use in showers by half to 936,000 litres, (468,000 litres of cold water and 468,000 litres of hot water).

### **Potential Savings**

- **Water Supply** - If your business is on town water supply the price of water would be approx \$0.60 per kilolitre. If you reduce the water use in your showers to 9 litres per minute it is possible to **save \$561** on your water cost each year.
- **Waste Water Discharge Fee** - Additional to the water supplied there maybe a discharge fee if the business is on a town sewerage system. This fee is charged to

approximately 50% of the total water used on the premises. The sewage charge is approx \$0.84 per kilolitre.

So by installing restrictors you can reduce your waste water discharge. In this example the original waste water discharge fees would be **approximately \$796**. After installing restrictors the cost would be **reduced to \$393**, reducing this cost by half.

- **Not on town water** – If you need to pump water the energy component of that process will cost approx \$0.30 - \$0.50 per kilolitre. So while water may be inexpensive electricity and fuel are not.
- **Reduced energy consumption** – installing restrictors or alternative water saving devices will also save you electricity or gas. Assuming that the water used in showers is 50% cold and 50% hot it is possible to reduce your energy bill for when you reduce the demand for hot water you also reduce the energy required to heat it.

### **Energy savings**

Approximately 50% of the water used in the showers is hot water.

Energy used with showers at 18 litres per minute = 936,000 litres of hot water.

936,000 litres divided by 15 = 62,400 kilowatt hours (kWh)

(If you have a gas hot water unit multiply kWh by 3.6 to determine the amount of mega joules. If you want to convert mega joules to litres, there are 25 mega joules in a litre)

Assuming the average off peak electricity rate is \$0.08 per kWh then the current cost to heat 936,000 litres of water would be 62,400 kWh x \$0.08 = \$4,992

When the flow rate is reduced to 9 litres per minute the energy saving is reduced to:

468,000 litres hot water divided by 15 = 31,200 kWh x \$0.08 = \$2,496

Energy saving = \$2,496 Electricity

= \$2,695 LPG Gas

**Total shower saving (water saving, waste water charge saving + energy saving) = Approx. \$3,450**

### **Cost saving example from Queensland**

This is an example of cost saving taken from a caravan park in Queensland. The park fitted water saving shower heads at a cost of \$12 each to their 8 showers which services 94 sites. Not only do the shower heads save water they also reduce heating costs as a result of using less hot water. The park managed to half its annual gas bill and saved \$3120 and an additional \$7000 in reduced water usage. A total saving of \$10,120 for an out lay of \$96.

### **Cost saving example - Washing machines**

You can save money with washing machines by simply turning off the hot water tap. Also as 75% of parks over heat hot water, monitor you water temp and reduce it if you insist on providing hot water. The majority of people are use to using cold water at home and detergents are developed for that purpose.

Additional saving can be achieved via using front loading washing machines – manufacturers and distributors can provide you with cost saving calculators to determine you potential savings.

I have provided a simple example below which you can substitute your figures and work out your savings.

### **Assumptions**

160 litres of water per wash – 80 litres hot & 80 litres cold. Your machines may use more or less hot water so you can input your own information to arrive at relevant cost saving for your business.

2 loads a day, per park (don't forget to include your residence) = 730 loads per year  
730x80 litres hot water = 58400 litres of hot water used on an annual basis

### **Energy – saving by reducing your storage water temp and saving by turning the hot tap off to the washing machine**

Water temp in - 12 °C rise to 60°C

Energy required 14716.8 MJ gas 3884 kWh electricity to heat 58400 litres

Cost of LPG Gas \$0.56 per litre and \$0.10 kWh electricity

Cost to heat hot water to 60°C = Gas  $14716.8 \text{ MJ} / 25.53 = 576 \text{ litres} \times \$0.56 = \$322.56$  and by electricity  $3884 \text{ kWh} \times \$0.10 = \$388.4$

*If your hot water system heats water to 65 degrees*

4288 kWh x \$0.10 = \$429 - \$41 difference from 60°C to 65°C

16250 gas / 25.53 = 637kgs x \$0.56 = \$357 - \$35 difference from 60°C to 65°C

If your hot water system heats

@ 70 °C = 4693 kWh x \$0.10 = \$469 - \$81 difference from 60°C

You can monitor the amount of times your washing machines are used simply by counting the money in them and dividing by the price of a wash.

When was the last time you raised the charge of a wash?

Speak to your local retailer of major manufacture of washing machines as there are potential savings achievable through installing front loading washing machines. These machines use less water (reducing water costs, water disposal fees, pumping costs, reduce wear and tear – maintenance costs)

### **Front loading machines**

Using less water means less energy is needed to heat that water for every cycle -- and heating water can account for a big portion of washing utility costs. And with high-speed extraction of up to 1,000 rpm and 300 g's, more water is removed during the spin cycle -- so it takes substantially less time and energy to dry clothes, too.

### **Turn the hot water tap off and save**

### **Water saving from using a front loading machine**

70 litres per wash

2 load per day = 730 per year = 51,100 litres or 51.1 KL

51.1 KL x \$0.60 (cost of water) = \$30.66

### **Compared to an older machine using 160 litres per load**

730 washes per year x 160 litres = 116,800 litres or 116.8 KL

116.8 KL x \$0.60 = \$70.8

**Water saving = approx 66,000 litres (66 KL) = \$40 saving**

### **Sewage charges – front loading savings**

Using the above example for a top loading machine - 116.8 KL disposed of via the sewer system at a charge of \$0.75 per KL would cost approx \$88

Using a front loading machine example the sewer charge would be Approx. \$50  
**Water saving + waste water discharge saving = \$90 additional savings would be achieved in energy savings as well**

The above example uses a cost of \$0.60 per kilo litre of water. If you are not on town water supply then you will have related costs to the supply of water such as extraction licences and pumping costs which will vary in the range of \$0.30 - \$0.50 per kilo litre. Therefore while water costs may be low the related costs to supplying water are still significant.

**Standing losses - hot water, fridges and standby power**

Electric hot water systems are not very efficient and governments around Australia are looking at banning their use.

There are standing losses in relation to all hot water storage units. So the simplest way to save money is turn off units when they are not in use, in amenity blocks and cabins/units.

Hot water units are often left operating in cabins when they are vacant. Operators often citing it is to difficult to turn them off of they take long time to heat up. Though how difficult is it to turn off a switch? A practice which can be added to the cleaning procedure and these small units only take 20 minutes to reheat.

Australian standards for standing losses for an 80L electric unit are 2.3kWh/day. Most of these units would not be on off peak rates, therefore at \$0.16 per kWh a unit would cost \$0.37 per day or \$2.60 a week when vacant.

Refrigerator units are often left running the same way as hot water units. Depending on the size and location of the fridge, the units may use between 1-2kwh of electricity a day when units are vacant 13cents and 26 cents a day or \$0.91-\$1.82.

Standby power – in addition to your office, many appliances including split systems, televisions, DVD/videos, clock radios, microwaves, stereos, use stand-by power. These items listed would cost \$45 annually consuming standby power.

Therefore a cabin with a small electric hot water service and fridge would cost the park \$0.50-\$0.63per day + standby power of \$0.12 a day = \$0.62-\$0.75 a day or \$4.34-\$5.25 a week per cabin.

**Table 1. What a cabin will cost you to operate when they are empty - (per year)**

Number of cabins	Occupancy Rate			
	30 %	40%	50%	60%
1	\$158-\$191	\$136-\$164	\$113-\$137	\$90-\$109
2	\$316-\$382	\$272-\$328	\$226-\$274	\$180-\$218
3	\$474-\$573	\$408-\$492	\$339-\$411	\$270-\$327
4	\$632-\$764	\$544-\$656	\$452-\$548	\$360-\$436
5	\$790-\$955	\$680-\$820	\$565-\$685	\$450-\$545
6	\$948-\$1146	\$816-\$984	\$678-\$822	\$540-\$654
7	\$1106-\$1337	\$952-\$1148	\$791-\$959	\$630-\$763
8	\$1264-\$1528	\$1088-\$1312	\$904-\$1096	\$720-\$872
9	\$1422-\$1719	\$1224-\$1476	\$1017-\$1233	\$810-\$981
10	\$1580-\$1910	\$1360-\$1640	\$1130-\$1370	\$900-\$1090

### **Water saving in toilets - Urinals**

Many caravan parks may have replaced their toilets for more water efficient models though often the urinals are still in the range of 10-14 litres flush. The cistern should be replaced with a much smaller 4-6 litre cistern or water bottles could be placed in the cistern to save water and money.

The potential saving will vary from park to park though you can substitute your figures with the examples provided to determine your savings

#### **Example**

The True Blue Caravan Park has 1 amenity block with a 12 litre cistern attached to the urinal. The owners are intending to renovate the amenity block in the coming years and don't want to spend money on the amenity block in the interim unless necessary. The park has 120 sites and 6 cabins and can accommodate a maximum of approx 500 people per night and the park has accommodated 13,000 visitor nights on average for the past 3 years (the state average). The park also has town water and sewerage services.

If the cabins were occupied 50% of the year with 3 people on average that would leave 10,000 visitor nights accounted for on sites and those people would use the amenity block. If we assume 50% are men and 50% are women and the men use the urinal twice a day (more likely to be 3 times) then that would account for 120,000 litres of water annually in 1 urinal alone. By placing ballast in the urinal which can take the form of plastic bottles with some sand or gravel (for stability so the bottles don't move interfering with the moving parts of the cistern) or what ever you might have on hand. Reducing a 12 litre flush to 6 will not effect the operational function of the urinal though it will half the water used in the urinal.

**Cost Saving** – assuming the cost of water is \$0.60 per kilo litre and the water saved is in the order of 60,000 litres (60 kilo litres) the saving on water costs would be \$36 in addition to which the sewerage discharge fee would also be reduced by \$26.

Reducing the volume of water will also reduce pumping costs for water or waste water and reduce the wear and tear on equipment and infrastructure which will result in reduced maintenance costs which can be quite expensive.

So by investing no more than 10 minutes of your time you can potentially save at least \$60-\$70 for one urinal, so the saving on two urinals would be \$120-\$140, three urinals \$180-\$210 on an annual basis.

This is a conservative example and greater savings are achievable for most parks.

Reduce by 6 litres

### **For Annual Parks**

Water is only going to increase in price. As no parks charge for water use they should consider restricting water use to annual site. Operators can insist that when new leases come up, new people move in, or set a date, for site holders to install efficient showers, taps and toilets. Water is not charged for directly in caravan and tourist parks though do you know how much your annuals are using and what the cost is for you? How much does it cost you to pump water? Do you limit the type of toilet and shower head, and taps your annuals install? If not that will increase your maintenance costs

You may also consider placing restrictions on the type of electrical appliances people use e.g. placing limits on air-conditioning units of 1.5 HP.

### **Lighting**

**One of the simplest ways to save money is to install energy efficient lighting.** Some people have commented about the purchase price of efficient globes and they might wait for the price to drop before they changed over their lighting. Sure they might save a few dollars if the price comes down but not as much if they purchase and install new lighting now.

The running cost of a standard globe for a year (*not that they last for that long – 3 months on average*) would be just over \$43 compared to \$9 for an energy efficient globe. The cost saving would be more significant when you add the cost of the extra globes and the cost of maintenance. When you multiply the cost saving per globe across your business and household the energy and dollar saving to you is quite significant.

If a business was to install 40 energy efficient light globes at an initial cost of \$100. The business would save up to \$1400 in energy expenditure with in the first year of installation. Over the life time of a globe the savings are quite considerable. Use the lighting calculator in the fact sheets to determine your cost outlay and achievable savings.

### **Recycling**

Implementing a recycling system is a simple way to save costs. There is a lot of misinformation and incorrect facts circulating about recycling.

The fact is, in the majority of situations it is cheaper to dispose of recycling than general waste.

With waste contractors receiving premium rates for disposing of your rubbish and only half as much to dispose of recycling, there certainly is not cost incentive for contractors to assist you in developing a recycling system.

Speak to you Regional Waste Management Group to identify the best solution for your needs. Refer to the fact sheets for contact details.

### **Insulating hot water pipes**

When you receive your energy bill do you wonder where all that energy goes? One of the most significant hidden costs of energy I have found in a caravan park is associated with hot water pipes.

Uninsulated hot water pipes can waste a lot of energy and cost a surprising amount of money.

The calculators provided on the fact sheets will allow you to determine you current costs and potential savings. As significant savings are achievable with minimum ease I strongly recommend you use the calculator and insulate all hot water pipes with quality insulation – (see fact sheet)

There are a variety of variables though for **each meter** of uninsulated hot water pipe potential savings of approximately \$100 for electric storage systems, \$60 for gas storage systems and \$40 for instantaneous systems.